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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,834	12/04/2003	Ulrich Bonne	H0004834(1100.1205101)	7422

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EXAMINER	
TURK, NEIL N	

ART UNIT	PAPER NUMBER
1743	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/727,834	BONNE ET AL.	
	Examiner	Art Unit	
	Neil Turk	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 April 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-9,13-38,40-46,49 and 50* is/are pending in the application.

4a) Of the above claim(s) *13-37* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-9,38,40-46,49 and 50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Remarks

This Office Action fully acknowledges Applicant's remarks made on April 17th, 2007. Claims 1, 3-9, 13-38, 40-46, 49, and 50 are pending. Claims 13-37 have been withdrawn from consideration. Claims 10-12, 47, and 48 have been cancelled. Claims 1, 3-9, 38, 40-46, 49, and 50 are currently under examination.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3-9, 38, 40-46, 49, and 50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what wavelength is being claimed by the newly recited amendment of, "...having a first wavelength adjacent a first end of the enclosure", and "...having a second wavelength adjacent the first end of the enclosure." It appears Applicant intends to claim the structural relation of the first and second light sources relative to the first end of the enclosure and does not intend to recite some specific wavelength that is somehow related by its adjacent nature to the first end of the enclosure. Examiner asserts that a re-wording of the claims to recite the intended structural relation will remedy the claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3-9, 38, 40-46, and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fein (6,016,372) in view of Klainer (4,846,548).

Fein discloses chemical sensing techniques employing liquid-core optical fibers. Fein discloses a gas or vapor permeable optical fiber waveguide with a liquid core is employed as a probe for the detection or measurement of a chemical specie of interest by filling the waveguide core region with a reagent liquid which undergoes a change in optical characteristic when exposed to the chemical specie and then inserting the filled waveguide into an environment in which the chemical specie may be present (abstract). Fein discloses that the polymer membrane used is permeable to gases, vapors, and certain chemical substances dissolved in a liquid matrix and the membrane is comprised of a polymer material which is amorphous, optically clear and has a refractive index which is less than 1.33 and the membrane can be formed into various self-supporting cylindrical shapes, which comprise optical waveguides when filled with liquid. Fein also discloses that the inside of the waveguide will be filled with a light conducting liquid and a wide range of chemical solutions whose optical properties are modified when exposed to permeant gases can be dissolved in the waveguide filling fluid (lines 48-67, col. 4; lines 1-12, col. 5). Fein also discloses that a preferable material for use as the containment tube of a reagent core waveguide is the copolymer of PDD and TFE, TEFLON AF 2400 being the copolymer of PDD with TFE, and the reagent core liquid inside the waveguide is an optical indicator responsive when expose to the analyte. Fein discloses that the optical changes may be detected by UV/Vis absorption, fluorescence, chemiluminescence, or Raman spectrometry (lines 14-40, col. 5). Fein shows such a sensor with a liquid core waveguide as the main body in figures 1-5. Fein shows the liquid core waveguide 10 with liquid core region 12 with liquid core

material 12', the sensor probe coupled to a light source 16 (laser, LED, tungsten lamp, etc.; lines 20-30, col. 11) through an optical fiber 18, the light propagating through and collected by an optical fiber(s) 20 to an analysis instrument 22 (lines 9-15, col. 6). Fein also discloses a flow-through technique where the core liquid 12 (indicator reagent) is delivered to the waveguide sensor via supply conduit 24 (container connected to the input) and exits through discharge conduit 26 (container connected to the output) (lines 16-23, col. 6, fig. 1). Examiner asserts that the indicator reagent in the waveguide is the first fluid capable of being contained in the enclosure and the analyte passed through is the second fluid that is permitted. Examiner further asserts that as claims 1, 3, 38, and 40 are written the claims do not require either fluid to be present, but merely the apparatus must have the physical space for the fluids. Fein further discloses detection (such as by those methods listed above) and identification of various compounds which includes the use of processors and indicators (columns 8-12). Fein further discloses that a receiver is positioned to detect light passed through the waveguide and monitors a change in an optical characteristic of the reagent (claims 16-18, columns 14 and 15). Fein shows in figure 5 another embodiment in which a specimen gas is delivered to the interior of container of container 86 by means of a pump 88 disposed in an inlet duct 90, and the discharge conduit 92 for the specimen gas is provided with a valve, which is controllable. Fein discloses that the pump and the valve allows the pressure of the of the specimen gas about the exterior of the waveguide tube 14 to be controlled. Fein also discloses through exercise of control over pumps 88 and 96 and valves 94 and 98, the pressure difference between the interior of housing 86 and the interior of tube 14

can be varied so as to cause gases to move into or out of the core liquid 12' (lines 24-55, col. 12, fig. 5).

Fein does not specifically disclose a second light source with a second wavelength.

Klainer discloses a fiber optic element used to detect the presence of a chemical or biological species (abstract). Klainer discloses an optical fiber for transmitting a light signal from a source to a sensor means at the end of the fiber and back to a detector, wherein the fiber optic chemical sensor (FOCS) is coated with a reagent with specific sensitivity for interaction with the analyte of interest (lines 1-67, col. 3, figs.1-5). Klainer shows in figure 4A an LED light source 30 producing a respective frequency and wavelength (could also be a laser, see lines 66-67, col. 6) coupled to a FOCS 32 and then to a photodiode detector (lines 21-67, col. 6, figs. 4A-B). Klainer further discloses in example 1 that multiple wavelength sources may be used to enhance sensitivity (lines 19-29, col. 7)

It would have been obvious to modify the Fein device to include a second light source of a second wavelength such as taught by Klainer in order to provide for enhanced sensitivity in detection of the chemical specie.

Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fein in view of Klainer as applied to claims 1, 3-9, 38, 40-46, and 50 and in further view of Wong (5,444,249).

Fein in view of Klainer does not specifically disclose a flow sensor in the enclosure.

Wong discloses a gas sensor with a light source at one end of a waveguide and a detector at the opposite end of the waveguide (abstract). Wong also discloses that other devices may be added to the gas sensor to enhance the performance of the sensor, and Wong discloses that a micro-flow sensor may be added to detect the flow rate of the sample gas through the sample chamber (lines 10-19, col. 3).

It would have been obvious to modify the Fein/Klainer device to include a flow sensor in the enclosure such as taught by Wong in order to enhance the performance of the gas sensor and provide for measuring the flow rate of the gas sample flowing through the sample chamber.

Response to Arguments

Applicant's arguments with respect to claims 1, 3-9, 38, 40-46, 49, and 50 have been considered but are moot in view of the new ground(s) of rejection. Applicant argues that the modification of Fein (6,016,372) in view of Klainer (4,846,548) to include a second light source with a second wavelength is improper. Applicant remarks that Fein discusses enhancing sensitivity in the device in various ways. Examiner asserts that such disclosure points to the fact that enhancing sensitivity is an item of interest in Fein. Thereby, the teaching of Klainer to provide multiple wavelength sources for the purpose of enhancing sensitivity would have been an obvious modification to the Fein device as another means for enhancing the sensitivity in detecting the chemical specie.

As such, amended claims 1, 3-9, 38, 40-46, 49, and 50 are rejected as discussed above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Neil Turk whose telephone number is 571-272-8914. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NT

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